IN THE CLAIMS

Please amend the claims as follows:

- 1. (Cancelled)
- 2. (Currently Amended) The semiconductor package of claim 1, A semiconductor package comprising:
 - a semiconductor die having a front side and an opposed backside;
 - a backside metallization layer formed on the backside of the die;
 - an integrated heat spreader:
- a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat; and

said backside metallization layer including three layers including an adhesion/barrier layer, a wetting layer, and a protection layer.

- (Original) The semiconductor package of claim 2, said adhesion/barrier layer formed of a material selected from the group consisting of Ti, TiN, Ta, and TaN.
- 4. (Original) The semiconductor package of claim 2, said wetting layer formed of a material selected from the group consisting of NiV and Ni.
- (Original) The semiconductor package of claim 2, said protection layer formed of a material selected from the group consisting of Au, Pt and Pd.
 - 6. (Cancelled)
 - 7. (Cancelled)
 - 8. (Cancelled)
- 9. (Currently Amended) The semiconductor package of claim [[1]] 2, said thermal interface layer including a barrier layer disposed between the solder portion and the integrated heat spreader.

Docket No. 5038-358

Page 3 of 8

Application No. 10/797,755

- 10. (Original) The semiconductor package of claim 9 wherein said barrier layer is formed of Ni.
- 11. (Currently Amended) The semiconductor package of claim [[1]] 2, wherein said backside metallization layer includes an adhesion/barrier layer, a wetting layer, and a protection layer, and said thermal interface layer includes a solder portion including gold (Au) and tin (Sn) together with a barrier layer formed of nickel (Ni) disposed between the solder portion and the integrated heat spreader.
 - 12. (Cancelled)
 - 13. (Cancelled)
 - 14. (Cancelled)
 - 15. (Cancelled)
 - (Cancelled)
 - 17. (Cancelled)
 - 18. (Cancelled)
 - 19. (Cancelled)
 - 20. (Cancelled)
 - 21. (Cancelled)
 - 22. (Cancelled)
 - 23. (Cancelled)
 - 24. (Cancelled)
 - 25. (Cancelled)
 - 26. (Cancelled)
 - 27. (Cancelled)
 - 28. (Previously Presented) A semiconductor package comprising:
 - a semiconductor die having a front side and an opposed backside;
 - a backside metallization layer formed on the backside of the die, said backside metallization layer including three layers including an adhesion/barrier layer, a wetting layer, and a protection layer;

an integrated heat spreader; and

- a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat.
- 29. (Previously Presented) The semiconductor package of claim 28, said adhesion/barrier layer formed of a material selected from the group consisting of Ti, TiN, Ta, and TaN.
- 30. (Previously Presented) The semiconductor package of claim 28, said wetting layer formed of a material selected from the group consisting of NiV and Ni.
- 31. (Previously Presented) The semiconductor package of claim 28, said protection layer formed of a material selected from the group consisting of Au, Pt and Pd.
- 32. (Previously Presented) The semiconductor package of claim 28, said solder portion including AuSn solder.
- 33. (Previously Presented) The semiconductor package of claim 32 wherein said solder portion includes either separate Au and Sn layers or a single eutectic AuSn layer.
- 34. (Previously Presented) The semiconductor device of claim 33 wherein a thickness of Au layer and Sn layer is formed so that an overall Au-to-Sn ratio by weight is 80 to 20.
- 35. (Previously Presented) The semiconductor package of claim 28, said thermal interface layer including a barrier layer disposed between the solder portion and the integrated heat spreader.
- 36. (Previously Presented) The semiconductor package of claim 35 wherein said barrier layer is formed of Ni.
 - 37. (Previously Presented) A semiconductor package comprising: a semiconductor die having a front side and an opposed backside; a backside metallization layer formed on the backside of the die; an integrated heat spreader; and

a thermal interface including a fluxlessly-capable solder portion deposited on a top surface of the integrated heat spreader and bonded to said metallization layer under load and heat, wherein said backside metallization layer includes an adhesion/barrier layer, a wetting layer, and a protection layer, and said thermal interface layer includes a solder portion including gold (Au) and tin (Sn) together with a barrier layer formed of nickel (Ni) disposed between the solder portion and the integrated heat spreader.